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(54) Title: SEPARATION OF METALS

(57) Abstract: The invention provides a process for the separation of metals, the metals being comprised as the metal oxides in a mixed oxide sample, the process comprising: (i) adding the mixed oxide to a molten salt electrolyte and cathodically electrolyzing the oxide, the potential of the cathode being controlled so as to favour oxygen ionisation over deposition of metal from the cations present in the molten salt, and the applied potential difference being such as to facilitate selective reduction of one metal oxide at the expense of other metal oxides; and (ii) separating the metal from the remaining metal oxides, wherein the metal oxides comprise oxides of metals from at least one of the transition metal, lanthanide or actinide series. The process is applicable to mixed oxide samples comprising mixtures of two or more metal oxides, and a particular application is in the separation of zirconium and hafnium comprised in mixed zirconium and hafnium oxides, the removal of hafnium facilitating the use of the zirconium in fuel cladding for use in the nuclear power industry.



WO 2004/050955 A3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C25C3/00 C22B3/00 C22B34/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y		1-11
Y	WO 02/066712 A (BRITISH NUCLEAR FUELS PLC ; PITNER WILLIAM ROBERT (GB); SMART NEIL GRA) 29 August 2002 (2002-08-29) page 10, line 23 - page 11, line 13	1-11
X	US 4 762 694 A (MARONI VICTOR A ET AL) 9 August 1988 (1988-08-09) claim 1; example 1	1
Y	US 4 923 577 A (MCLAUGHLIN DAVID F ET AL) 8 May 1990 (1990-05-08) column 2, line 44 - column 4, line 22	3
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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